

The Athenian Mercury:

Saturday, January 28. 1693.



Quest. 1. **W**HAT'S the reason of the *Mercury's ascending in the Glass Tube always in fair Weather, and descending in rainy Weather?* If you can demonstrate it to be some unequal pressure of the *Atmosphere*, I ask further, How a Column of the Atmosphere can weigh as much thro' the Roof of a House, Chambers and all, as in the open Firmament, when nothing interposes?

Answe. This is a Noble Question, and if Answer'd fully and intelligibly, as it shou'd be, will remove the prejudices with which some of our later Philosophers have embarrass'd it withal. This Question has properly two parts, neither of 'em inconsiderable, We shall consider the first of 'em in its place: But first of all we must premise, That in all Bodies there's a twofold Weight, one *Specifical*, the other *Individual*; by *Specifical* we mean that weight which every Body has in it self, comparatively to another Body of the same Bulk: For example, a piece of Gold bears such proportion in weight to a piece of Lead of the same bigness, as 100 to $60\frac{1}{2}$: By *Individual weight*, we mean Bodies which are of the same Weight when weighed in a pair of Scales, as a pound weight of Iron is as heavy as a pound of Wool, altho' their Bulks be very unproportional. Of this last Weight we shall consider the Air, and we find by the Experiments that have been lately made, that *Quicksilver* is about 14000 times heavier than the *Air*, from whence it will follow, that a *Column of Air, equal in thickness to a Cilinder of Quicksilver, must be 14000 times as long as that Cilinder of Quicksilver, to ballance or Counterpoize it.* But for the use of a few, before we show after what manner it counterpoizes the *Quicksilver*, we ought to give such an Account of the Weather-glass, as perhaps every one has not had either the Opportunity, or Curiosity to acquaint themselves with. The *Tube of Glass* which contains the *Mercury*, is hermetically seal'd up at the one end, and then the *Mercury* put in by a little at a time, that the *Air* in the *Tube* may be at liberty to come out; for if it were put in as fast as the *Tube* wou'd receive it, it wou'd compress the *Air* in it like an *Air gun*, and by consequence not come to the Bottom; and the *Quicksilver* being once in, and of a very close Body, (as is manifest by its weight) it keeps the *Air* from getting betwixt it and the top of the *Tube* when it subsides, and by this means there's no *Column of Air* to weigh the *Quicksilver* down, besides its own natural Gravity. At the bottom of this *Tube* is plac'd a sort of a *Cistern*, which has such a Communication with the *Tube*, that there is form'd a kind of a *Natural Balance*; for the *Column of Air* which presses upon the *Cistern* counterpoizes the *Quicksilver* in the *Tube*, and when the *Atmosphere* is very heavy, the *Quicksilver* mounts up, as the lighter Scale always does by the drawing of the heavier; and when the least weight is subtracted from the pressure of the *Atmosphere*, the *Silver* prevails, and sinks lower.

But the Difficulty yet recurs, Why does the *Quicksilver* fall low when the *Air* is very full of Rain and Clouds, and therefore apparently shou'd be the heavier. To this We *Answe*, That 'tis a Mistake, and it will appear so, if we consider, that *Vapours* which are much lighter than the *Air*, do therefore rise upwards when the *Air* thrusts under 'em; (which by the by discovers the Vulgar Error of their being drawn up by the heat of the Sun) and these being added to the weight of the *Air*, must necessarily make the *Atmosphere* heavier wheresoever there be any opposite Wind to drive 'em together, and so condense 'em into thick Clouds; or whether they expatiate, being rarified by heat, for they are yet the same Weight, altho'

in a more extended and larger Compass. Now if we suppose 'em by the extremity of Cold to contract themselves, or by the contrariety of Winds to be justled into thick Clouds, it will only follow, that the same Individual Weight is now in a lesser room, and the pressure of the *Atmosphere* the same, for its all one, whether a fleece of Wool be weigh'd loose, or straitly'd up. But it will be yet *Objected*, That Experience seems to contradict this, since before any Rain falls, when the face of the *Sky* is very cloudy and dull, the *Quicksilver* does actually subside: To this we *Answe*, That tho' it does not Rain immediately in such or such a County, yet it certainly does in some Neighbouring one or other, perhaps within 30, 40, or 50 Miles, and the *Air* being fluid, it soon retires to these places (that is, where Rain is falling) and thereby takes off from the pressure of the *Atmosphere*, where no Rain had yet fallen, which therefore has the same effect upon the *Mercury*, as if so much Rain had actually fallen where it was expected, and where the *Mercury* actually subsides, and this we hope does fully solve the Case.

As to the latter part of the Question, which asks, How the *Air* can weigh as much in an *House*, thro' *Roof, Chambers and all*, as in the open Firmament: We *Answe*, It weighs not thro' the *Roof* of the *houle*; but being a fluid Body, it makes its passage thro' doors, Windows, &c. and is as hard crowded there, and by consequence must weigh as much as in the open Firmament. That 'tis as close crowded in a *House*, as abroad, is plain enough. We'll suppose the *Air* to be *Water*, as deep as the *Atmosphere* is high, continually upon motion, by *flux, reflux, &c.* there's no one cou'd be so silly as to imagine, that it wou'd not find the way into *Houses*, without sinking through the tops of 'em; for the *Air* (if we suppose any in the *Houses*) would not be able to resist the impule of the *Water*, since the *Columns of Water* being press'd on every side by other *Columns*, and above by their own Weight, could not find the like resistance from the *Air* in the *House* as amongst themselves, and therefore must enter into the *House*. Now *Air* being more fluid, we can't suppose it les able to get into *Houses* than *Water*: If it be *Objected*, That tho' it gets in, it follows not that it must be crowded as we pretend; We *Answe*, That if the *Air* in the *House* was not as close crowded together by the pressure of the *Atmosphere*, as that in the open Firmament, it would follow, that the weaker and looser *Air* in the *House* made as strong an *Effront* upon the compressing *Air* without the *House*, as that upon it, which is as absurd as this Position, That the *weaker is able to repell the stronger*: Now if the *Air* be as close crowded within, as without, those particles that are next to the *Cieling*, must make the same resistance against the *Cieling*, or *Floor*, as a *Column of Air* without the *House*, just so high, does make against its superimposed *Column*, and no more: But the resistance of any two Bodies, where neither gets ground, is mutually equal; therefore the *Cieling* presses as much upon the *Air* in the *House*, as a *Column of Air* from the top of the *Cieling* to the top of the *Atmosphere*, wou'd press upon a *Column of Air* just so high as the *Cieling*, and by consequence the *Cieling together with that Column of Air which is just over the Cistern of the Weather-glass*, presses as hard upon the *Air* in the *Cistern*, as a direct *Cylindric Column of Air* in the open Firmament wou'd do, which was to be demonstrated.

Quest. 2. In our late Civil War a *Trooper* was surprized by two *Troopers* of the adverse Party, but had just time enough

to fly from them on foot; in his flight he met a young Woman whom he knew, and told her his danger; a little after the two Persuers met her, asking her which way the Soldier went, withall threatening his Life; she (with a good Presence of Mind) directed them the contrary way, which they took, and thereby in probability saved his Life — Query, Whether the seeming Lye of the Womans was Criminal, and a sin before God?

Ans. Had the young Woman told truth, she had been accessory to Murder; but she could not properly have been said to tell a Lye, for a Lye is that which is spoke with an Intention to deceive: Now to be deceived, does suppose that the Person deceived is thereby necessitated to be disappointed of some Truth: But that every Wickedness and Sin is a Lye, is plain, because 'tis contradictory to Truth, we mean, God himself, and therefore the Scriptures speak of all Men being Liars, that is sinfull: But in this sense, which is the most proper, she did not deceive the Troopers, but endeavour'd the contrary, by inducing them to abstain from Murder, that is from a Lye, as we said above; and 'tis no matter what Words she used to effect such a good End. But after all, should we have suppos'd her to have told a Lye in the sense usually taken, it won't yet follow that she was guilty of Sin, since she was necessitated to be accessory to Murder or to do it, and of two Evils if we choose the least, it is no longer an evil comparatively to the other, tho' it might compar'd with something else, so that every way we think her innocent and commendable.

Quest. 3. A Person of some Estate and Family having had High Treason sworn against him, though falsely and malitiously, so that inevitably he must dye for the same, and his Family ruine, meeting this Man on the Road, and having a fair opportunity, falls on and kills him, in hopes to prevent that which would otherwise inevitably befall himself: Query, If this Man is guilty of Murder before God? your Answer is desired in the next?

Ans. To dye is not an evil in its self, since it is every good Man's Interest, and to dye unjustly is much less an Evil, since there's a particular Promise to such as are persecuted and suffer unjustly: Now if I may not do an ill Action (as Murder is perhaps the greatest, next after Idolatry) that good may come of it, much less may I do an ill Action to avoid that which is not ill in it self: So that our Answer is in the Negative.

Quest. 4. There is a young Man that was brought as a Suitor to me, and my Father not Complying he Courted my Servant, and says that he will have her, although his Friends are against it; now if he will have me, my Friends will give him the Portion which he said he would have, which was three thousand Pounds Sterling, now our Friends and he will agree to your Answer; pray let us have it next Saturday, and let Equity be done?

Ans. Alas poor Lady! 'tis pity you should want a Husband, or a Preferment above your own Maid: But how shall we help you, or do you Equity? how can your Friends agree to our Answer, if the Gentleman will not? we'll give you our Vote of Preferment, and believe you to be Rich and Witty, Pious and Pretty, and your Maids Mistres into the Bargain. We know of no other Method, unless you can perswade the Gentleman to become a Member of our Society, and then we can force him to a Complyance, since the most Votes will carry it.

Quest. 5. Not long since I happened to be at a merry Meeting, at which time I was taken (of a sudden) with a Melancholly Fit, insomuch that I abhorred all Mirth, and went home, where when I came, I found (to my great Grief) my Mother dead, and upon Examination I found that she dyed (as nigh as I could guess) at that same instant of time that I was taken with that Fit: Query, Whether this proceeded from any Natural Cause, or otherwise, is my Humble Request?

Ans. This Question will receive its full Answer very speedily, amongst several others of like Nature that were lately sent us by a very Ingenious Hand, occasion-

ed by a Passage in the Book entitled *The Tryal and Condemnation of several Witches in New-England*: The Passage is that of the Man's appearing to his Brother in Boston in New-England, the same Moment he was Murder'd here in London.

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